

Nonprovisional Patent Application  
17596 (BOT)

Fernandez-Salas, E. et al., Botulinum Toxin Screening Assays

SEQUENCE LISTING

<110> Fernandez-Salas, Ester  
Garay, Patton  
Aoki, Kei Roger

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<130> 17596 (BOT)

<150> US 60/547,591

<151> 2004-02-24

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Arg Arg Val Leu Cys His Phe Ser Val Arg Val Thr Asp Ala Pro Ser  
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Pro Tyr Trp Thr Arg Pro Glu Arg Met Asp Lys Lys Leu Leu Ala Val

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Glu Asn Lys Phe Gly Ser Ile Arg Gln Thr Tyr Thr Leu Asp Val Leu			
225	230	235	240
Glu Arg Ser Pro His Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn			
245	250	255	
Gln Thr Ala Ile Leu Gly Ser Asp Val Glu Phe His Cys Lys Val Tyr			
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Ser Asp Ala Gln Pro His Ile Gln Trp Leu Lys His Val Glu Val Asn			
275	280	285	
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Thr Ala Gly Ala Asn Thr Thr Asp Lys Glu Leu Glu Val Leu Ser Leu			
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Glu	Tyr	Leu	Asp	Leu	Ser	Val	Pro	Phe	Glu	Gln	Tyr	Ser	Pro	Gly	Gly
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Gln	Asp	Thr	Pro	Ser	Ser	Ser	Ser	Gly	Asp	Asp	Ser	Val	Phe	Thr	
						770		775			780				
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Ala Ile Leu Gly Ser Asp Val Glu Phe His Cys Lys Val Tyr Ser Asp		240
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275	280	285
Gly Ala Asn Thr Thr Asp Lys Glu Leu Glu Val Leu Ser Leu His Asn		
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<211> 802

<212> PRT

<213> Rattus norvegicus FGFR3IIIb

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Ala Thr His Glu Asp Ala Gly Val Tyr Ser Cys Gln Gln Arg Leu Thr  
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Glu Phe Leu Arg Ala Arg Arg Pro Pro Gly Met Asp Tyr Ser Phe Asp  
565 570 575  
Ala Cys Arg Leu Pro Glu Glu Gln Leu Thr Cys Lys Asp Leu Val Ser  
580 585 590  
Cys Ala Tyr Gln Val Ala Arg Gly Met Glu Tyr Leu Ala Ser Gln Lys  
595 600 605  
Cys Ile His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asp  
610 615 620  
Asn Val Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Val His Asn  
625 630 635 640  
Leu Asp Tyr Tyr Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp  
645 650 655  
Met Ala Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His Gln Ser Asp  
660 665 670  
Val Trp Ser Phe Gly Val Leu Leu Trp Glu Ile Phe Thr Leu Gly Gly  
675 680 685  
Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys  
690 695 700  
Glu Gly His Arg Met Asp Lys Pro Ala Asn Cys Thr His Asp Leu Tyr  
705 710 715 720  
Met Ile Met Arg Glu Cys Trp His Ala Val Pro Ser Gln Arg Pro Thr  
725 730 735  
Phe Lys Gln Leu Val Glu Asp Leu Asp Arg Ile Leu Thr Val Thr Ser  
740 745 750  
Thr Asp Glu Tyr Leu Asp Leu Ser Val Pro Phe Glu Gln Tyr Ser Pro  
755 760 765  
Gly Gly Gln Asp Thr Pro Ser Ser Ser Ser Gly Asp Asp Ser Val  
770 775 780  
Phe Thr His Asp Leu Leu Pro Pro Gly Pro Pro Ser Asn Gly Gly Pro  
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Arg Thr

<210> 17

<211> 2403

<212> DNA

<213> Rattus norvegicus FGFR3IIIC



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atgcggaaat gttggcatgc agtgcctca cagaggccca ccttcaagca gttggtagag  
2220  
gat tagacc gcacccctac ggtgacatca actgacgagt acttggacct ctcggtgcca  
2280  
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tga  
2403

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<211> 800  
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<213> Rattus norvegicus FGFR3IIc

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35 40 45  
Phe Gly Ser Gly Asp Thr Val Glu Leu Ser Cys His Pro Pro Gly Gly  
50 55 60  
Ala Pro Thr Gly Pro Thr Leu Trp Ala Lys Asp Gly Val Gly Leu Val  
65 70 75 80  
Ala Ser His Arg Ile Leu Val Gly Pro Gln Arg Leu Gln Val Leu Asn  
85 90 95  
Ala Thr His Glu Asp Ala Gly Val Tyr Ser Cys Gln Gln Arg Leu Thr  
100 105 110  
Arg Arg Val Leu Cys His Phe Ser Val Arg Val Thr Asp Ala Pro Ser  
115 120 125  
Ser Gly Asp Asp Glu Asp Gly Glu Asp Val Ala Glu Asp Thr Gly Ala  
130 135 140  
Pro Tyr Trp Thr Arg Pro Glu Arg Met Asp Lys Lys Leu Leu Ala Val  
145 150 155 160  
Pro Ala Ala Asn Thr Val Arg Phe Arg Cys Pro Ala Ala Gly Asn Pro  
165 170 175  
Thr Pro Ser Ile Pro Trp Leu Lys Asn Gly Lys Glu Phe Arg Gly Glu  
180 185 190  
His Arg Ile Gly Gly Ile Lys Leu Arg His Gln Gln Trp Ser Leu Val  
195 200 205  
Met Glu Ser Val Val Pro Ser Asp Arg Gly Asn Tyr Thr Cys Val Val  
210 215 220  
Glu Asn Lys Phe Gly Ser Ile Arg Gln Thr Tyr Thr Leu Asp Val Leu  
225 230 235 240  
Glu Arg Ser Pro His Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn  
245 250 255  
Gln Thr Ala Val Leu Gly Ser Asp Val Glu Phe His Cys Lys Val Tyr  
260 265 270  
Ser Asp Ala Gln Pro His Ile Gln Trp Leu Lys His Val Glu Val Asn  
275 280 285  
Gly Ser Lys Val Gly Pro Asp Gly Thr Pro Tyr Val Thr Val Leu Lys

290	295	300
Thr Ala Gly Ala Asn Thr Thr Asp Arg Glu	Leu Glu Val Leu Ser Leu	Leu
305	310	315
His Asn Val Thr Phe Glu Asp Ala Gly Glu	Tyr Thr Cys Leu Ala Gly	320
325	330	335
Asn Ser Ile Gly Phe Ser His His Ser Ala Trp	Leu Val Val	Leu Pro
340	345	350
Ala Glu Glu Leu Met Glu Val Asp Glu Ala Gly	Ser Val Tyr Ala	
355	360	365
Gly Val Leu Ser Tyr Gly Val Gly Phe Phe Leu	Phe Ile Leu Val Val	
370	375	380
Ala Ala Val Thr Leu Cys Arg Leu Arg Ser Pro	Pro Lys Lys Gly Leu	
385	390	395
Gly Ser Pro Thr Val His Lys Val Ser Arg Phe	Pro Leu Lys Arg Gln	400
405	410	415
Val Ser Leu Glu Ser Asn Ser Ser Met Asn Ser Asn	Thr Pro Leu Val	
420	425	430
Arg Ile Ala Arg Leu Ser Ser Gly Glu Gly Pro	Val Leu Ala Asn Val	
435	440	445
Ser Glu Leu Glu Leu Pro Ala Asp Pro Lys Trp	Glu Leu Ser Arg Thr	
450	455	460
Arg Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly	Cys Phe Gly Gln Val	480
465	470	475
Val Met Ala Glu Ala Ile Gly Ile Asp Lys Asp Arg	Thr Ala Lys Pro	
485	490	495
Val Thr Val Ala Val Lys Met Leu Lys Asp Asp	Ala Thr Asp Lys Asp	
500	505	510
Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys	Met Ile Gly Lys	
515	520	525
His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys	Thr Gln Gly Gly Pro	
530	535	540
Leu Tyr Val Leu Val Glu Tyr Ala Ala Lys Gly	Asn Leu Arg Glu Phe	
545	550	555
Leu Arg Ala Arg Arg Pro Pro Gly Met Asp Tyr	Ser Phe Asp Ala Cys	560
565	570	575
Arg Leu Pro Glu Glu Gln Leu Thr Cys Lys Asp	Leu Val Ser Cys Ala	
580	585	590
Tyr Gln Val Ala Arg Gly Met Glu Tyr Leu Ala	Ser Gln Lys Cys Ile	
595	600	605
His Arg Asp Leu Ala Ala Arg Asn Val Leu Val	Thr Glu Asp Asn Val	
610	615	620
Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp	Val His Asn Leu Asp	640
625	630	635
Tyr Tyr Lys Lys Thr Asn Gly Arg Leu Pro Val	Lys Trp Met Ala	
645	650	655
Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His	Gln Ser Asp Val Trp	
660	665	670
Ser Phe Gly Val Leu Leu Trp Glu Ile Phe Thr	Leu Gly Gly Ser Pro	
675	680	685
Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys	Leu Leu Lys Glu Gly	
690	695	700
His Arg Met Asp Lys Pro Ala Asn Cys Thr His	Asp Leu Tyr Met Ile	
705	710	715
Met Arg Glu Cys Trp His Ala Val Pro Ser Gln	Arg Pro Thr Phe Lys	720
725	730	735
Gln Leu Val Glu Asp Leu Asp Arg Ile Leu Thr	Val Thr Ser Thr Asp	

740	745	750
Glu Tyr Leu Asp Leu Ser Val Pro Phe Glu Gln Tyr Ser Pro Gly Gly		
755	760	765
Gln Asp Thr Pro Ser Ser Ser Ser Gly Asp Asp Ser Val Phe Thr		
770	775	780
His Asp Leu Leu Pro Pro Gly Pro Pro Ser Asn Gly Gly Pro Arg Thr		
785	790	795
		800

<210> 19

<211> 2421

<212> DNA

<213> Gallus gallus FGFR3

<400> 19

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1800  
tactggcgct cacagaaatg cattcatcgta gacttggcag ccagaaatgt gttagtcact  
1860  
gaggacaatg tgatgaaaat agctgtttt ggccttgcta gagacgttca caacatcgac  
1920  
tattacaaga aaaccaccaa tggtcggctg cctgtgaaat ggatggcttca agaaggcattg  
1980  
tttgacccggg ttatatactca ccagagcgat gtcgtgttctt ttggagtgtctt actatggag  
2040  
atcttcactt tgggagggtc tccgttcccg ggaattcctt ttgaagaact ctcaaaactc  
2100  
ttgaaagaag gccatcgat ggataaaaccc gccaactgttca cccacgaccc gtatcatgttca  
2160  
atgcgggagt gctggcacgc tgcccttcg cagcgaccca cattcaageca gctggtgaa  
2220  
gacctggaca gagtccttcac catgacatcc actgtatgagt acctggaccc tctcggtgcc  
2280  
tttgagcaat actcaccgcg tggcaggac acccagacca cctgcttc agggagcag  
2340  
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aatggcgtca tccgcacgt a  
2421

<210> 20

<211> 806

<212> PRT

<213> Gallus gallus FGFR3

<400> 20

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Val	Gly	Ala	Leu	Pro	Ala	Ala	Arg	Arg	Arg	Gly	Ala	Glu	Arg	Ser	Gly
	20						25							30	
Gly	Gln	Ala	Ala	Glu	Tyr	Leu	Arg	Ser	Glu	Thr	Ala	Phe	Leu	Glu	Glu
	35					40								45	
Leu	Val	Phe	Gly	Ser	Gly	Asp	Thr	Ile	Glu	Leu	Ser	Cys	Asn	Thr	Gln
	50					55								60	
Ser	Ser	Ser	Val	Phe	Trp	Phe	Lys	Asp	Gly	Ile	Gly	Ile	Ala		
	65				70		75							80	
Pro	Ser	Asn	Arg	Thr	His	Ile	Gly	Gln	Lys	Leu	Leu	Lys	Ile	Ile	Asn
		85				90								95	
Val	Ser	Tyr	Asp	Asp	Ser	Gly	Leu	Tyr	Ser	Cys	Lys	Pro	Arg	His	Ser
		100					105							110	
Asn	Glu	Val	Leu	Gly	Asn	Phe	Thr	Val	Arg	Val	Thr	Asp	Ser	Pro	Ser
		115					120							125	
Ser	Gly	Asp	Asp	Glu	Asp	Asp	Asp	Asp	Glu	Ser	Glu	Asp	Thr	Gly	Val
	130				135									140	
Pro	Phe	Trp	Thr	Arg	Pro	Asp	Lys	Met	Glu	Lys	Lys	Leu	Leu	Ala	Val
145				150				155						160	
Pro	Ala	Ala	Asn	Thr	Val	Arg	Phe	Arg	Cys	Pro	Ala	Gly	Gly	Asn	Pro
		165				170								175	
Thr	Pro	Thr	Ile	Tyr	Trp	Leu	Lys	Asn	Gly	Lys	Glu	Phe	Lys	Gly	Glu

180	185	190
His Arg Ile Gly Gly Ile Lys Leu Arg His Gln Gln Trp Ser Leu Val	195	200
205		
Met Glu Ser Val Val Pro Ser Asp Arg Gly Asn Tyr Thr Cys Val Val	210	215
220		
Glu Asn Lys Tyr Gly Asn Ile Arg His Thr Tyr Gln Leu Asp Val Leu	225	230
240		
Glu Arg Ser Pro His Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn	245	250
255		
Gln Thr Val Val Gly Ser Asn Val Glu Phe His Cys Lys Val Tyr	260	265
270		
Ser Asp Ala Gln Pro His Ile Gln Trp Leu Lys His Val Glu Val Asn	275	280
285		
Gly Ser Lys Tyr Gly Pro Asp Gly Thr Pro Tyr Val Thr Val Leu Lys	290	295
300		
Thr Ala Gly Val Asn Thr Thr Asp Lys Glu Leu Glu Ile Leu Tyr Leu	305	310
320		
Arg Asn Val Thr Phe Glu Asp Ala Gly Glu Tyr Thr Cys Leu Ala Gly	325	330
335		
Asn Ser Ile Gly Phe Ser His His Ser Ala Trp Leu Thr Val Leu Pro	340	345
350		
Ala Glu Glu Leu Met Glu Met Asp Asp Ser Gly Ser Val Tyr Ala Gly	355	360
365		
Ile Leu Ser Tyr Gly Thr Gly Leu Val Leu Phe Ile Leu Val Leu Val	370	375
380		
Ile Val Ile Ile Cys Arg Met Lys Met Pro Asn Lys Lys Ala Met Asn	385	390
400		
Thr Thr Thr Val Gln Lys Val Ser Lys Phe Pro Leu Lys Arg Gln Gln	405	410
415		
Val Ser Leu Glu Ser Asn Ser Ser Met Asn Ser Asn Thr Pro Leu Val	420	425
430		
Arg Ile Thr Arg Leu Ser Ser Ser Asp Gly Pro Met Leu Ala Asn Val	435	440
445		
Ser Glu Leu Glu Leu Pro Pro Asp Pro Lys Trp Glu Leu Ala Arg Ser	450	455
460		
Arg Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val	465	470
480		
Val Met Ala Glu Ala Ile Gly Ile Asp Lys Asp Lys Pro Asn Lys Ala	485	490
495		
Ile Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala Thr Asp Lys Asp	500	505
510		
Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys Met Ile Gly Lys	515	520
525		
His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro	530	535
540		
Leu Tyr Val Leu Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr	545	550
560		
Leu Arg Ala Arg Arg Pro Pro Gly Met Asp Tyr Ser Phe Asp Thr Cys	565	570
575		
Lys Leu Pro Glu Glu Gln Leu Thr Phe Lys Asp Leu Val Ser Cys Ala	580	585
590		
Tyr Gln Val Ala Arg Gly Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile	595	600
605		
His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asp Asn Val	610	615
620		
Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Val His Asn Ile Asp		

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<210> 21
<211> 2484
<212> DNA
<213> Xenopus laevis FGFR3-1
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1320  
gagtcactaact ctttatgaa ttccaaacacc cgcgtgtga ggatcactca cctgtctcc  
1380  
a cgcacggaa ccatgttgc taatgtgtcg gagctcgcc tgccctgg tcccaagtgg  
1440  
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1560  
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1620  
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1680  
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1740  
tatttaagg cacggcgccc cccaggaatg gattattctt ttgacacactg caaaattcca  
1800  
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1860  
gagtaacctgg cgtcgaaaaa atgtattcac agagatctgg cagccagaaa tctgttagta  
1920  
acagatgaca ttgtatgaa gattgcagat ttcggcttgc ccagggatc ccacaacata  
1980  
gatattaca agaaaacaac aaatggctgg ctgcagatca aatggatggc tccggaaact  
2040  
ttgtcgacc gatatacacat tcatacagatc gatgtatggt cgtacggat gctgtgtgg  
2100  
gagatattta cactgggggg ctcgccttac ccaggatcc cagtagagga actcttaag  
2160  
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2220  
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2280  
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2340  
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2400  
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2484

<210> 22

<211> 827

<212> PRT

<213> Xenopus laevis FGFR3-1

<400> 22

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Ser Val Asn Cys Val Pro Ala Ala Arg Leu Pro Val Thr Leu Pro Gly

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50	55	60
Pro Pro Phe Asp Glu Leu Met Phe Thr Ile Gly Glu Thr Ile Glu Leu		
65	70	75
Ser Cys Ser Ala Asp Asp Ala Ser Thr Thr Lys Trp Phe Lys Asp		
85	90	95
Gly Ile Gly Ile Val Pro Asn Asn Arg Thr Ser Thr Arg Gln Gly Leu		
100	105	110
Leu Lys Ile Ile Asn Ile Ser Tyr Asp Asp Ser Gly Ile Tyr Ser Cys		
115	120	125
Arg Leu Trp His Ser Thr Glu Ile Leu Arg Asn Phe Thr Ile Arg Val		
130	135	140
Thr Asp Leu Pro Ser Ser Gly Asp Asp Glu Asp Asp Asp Glu Thr		
145	150	155
Glu Asp Arg Glu Pro Pro Arg Trp Thr Gln Pro Glu Lys Met Glu Lys		
165	170	175
Lys Leu Ile Ala Val Pro Ala Ala Asn Thr Ile Arg Phe Arg Cys Pro		
180	185	190
Ala Ala Gly Asn Pro Thr Pro Thr Ile His Trp Leu Lys Asn Gly Lys		
195	200	205
Glu Phe Arg Gly Glu His Arg Ile Gly Gly Ile Lys Leu Arg His Gln		
210	215	220
Gln Trp Ser Leu Val Met Glu Ser Val Val Pro Ser Asp Lys Gly Asn		
225	230	235
Tyr Thr Cys Val Val Glu Asn Lys Tyr Gly Ser Ile Arg Gln Thr Tyr		
245	250	255
Gln Leu Asp Val Leu Glu Arg Ser Ser His Arg Pro Ile Leu Gln Ala		
260	265	270
Gly Leu Pro Ala Asn Gln Thr Val Val Phe Gly Ser Asp Val Glu Phe		
275	280	285
His Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Leu Lys		
290	295	300
His Val Glu Val Asn Gly Ser Lys Tyr Gly Pro Asp Gly Asp Pro Tyr		
305	310	315
Val Thr Val Leu Gln Ser Phe Thr Asn Gly Thr Glu Val Asp Ser Thr		
325	330	335
Leu Ser Leu Lys Asn Val Thr Glu Thr His Glu Gly Gln Tyr Val Cys		
340	345	350
Arg Ala Asn Asn Phe Ile Gly Val Ala Glu Ala Ser Phe Trp Leu His		
355	360	365
Ile Tyr Lys Pro Ala Pro Ala Glu Pro Val Glu Lys Pro Ala Thr Thr		
370	375	380
Ser Ser Ser Ser Ile Thr Val Leu Ile Val Val Thr Ser Thr Ile Val		
385	390	395
Phe Ile Leu Leu Val Ile Ile Val Ile Thr Tyr Arg Met Lys Val Pro		
405	410	415
Ser Lys Lys Ala Met Ser Thr Pro Pro Val His Lys Val Ser Lys Phe		
420	425	430
Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ser Ser Met Asn Ser		
435	440	445
Asn Thr Pro Leu Val Arg Ile Thr His Leu Ser Ser Ser Asp Gly Thr		
450	455	460
Met Leu Ala Asn Val Ser Glu Leu Gly Leu Pro Leu Asp Pro Lys Trp		
465	470	475
Glu Leu Leu Arg Ser Arg Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly		

485	490	495
Cys Phe Gly Gln Val Val Met Ala Glu Ala Ile Gly Ile Asp Lys Glu		
500	505	510
Arg Pro Asn Lys Pro Val Thr Val Ala Val Lys Met Leu Lys Asp Asp		
515	520	525
Ala Thr Asp Lys Asp Leu Ser Asp Leu Val Ser Glu Met Glu Met Met		
530	535	540
Lys Met Ile Gly Lys His Asn Ile Ile Asn Leu Leu Gly Ala Cys		
545	550	555
Thr Gln Asp Gly Pro Leu Tyr Val Leu Val Glu Tyr Ala Ser Lys Gly		
565	570	575
Asn Leu Arg Glu Tyr Leu Lys Ala Arg Arg Pro Pro Gly Met Asp Tyr		
580	585	590
Ser Phe Asp Thr Cys Lys Ile Pro Ala Glu Gln Leu Thr Phe Lys Asp		
595	600	605
Leu Val Ser Cys Ala Tyr Glu Val Ala Arg Gly Met Glu Tyr Leu Ala		
610	615	620
Ser Gln Lys Cys Ile His Arg Asp Leu Ala Ala Arg Asn Val Leu Val		
625	630	635
Thr Asp Asp Ile Val Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp		
645	650	655
Ile His Asn Ile Asp Tyr Tyr Lys Lys Thr Thr Asn Gly Arg Leu Pro		
660	665	670
Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Ile Tyr Thr His		
675	680	685
Gln Ser Asp Val Trp Ser Tyr Gly Val Leu Leu Trp Glu Ile Phe Thr		
690	695	700
Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys		
705	710	715
Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn Cys Thr His		
725	730	735
Glu Leu Tyr Met Ile Met Arg Glu Cys Trp His Ala Val Pro Ser Gln		
740	745	750
Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg Val Leu Thr		
755	760	765
Val Thr Ser Thr Asp Glu Tyr Leu Asp Leu Ser Val Pro Phe Glu Gln		
770	775	780
Tyr Ser Pro Ala Gly Gln Asp Ser Asn Ser Thr Cys Ser Ser Gly Asp		
785	790	795
Asp Ser Val Phe Ala His Asp Ile Leu Pro Asp Glu Pro Cys Leu Pro		
805	810	815
Lys Gln Gln Gln Tyr Asn Gly Ala Ile Arg Thr		
820	825	

<210> 23

<211> 2409

<212> DNA

<213> Xenopus laevis FGFR3-2

<400> 23

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accaagtgtt gtaaggatgg tattggcatt gtacccaaaca acagaacaag cacaaggcag 240  
ggcctgctga agattatcaa cgtctccctc gatgactccg ggatatacag ctgcagacta 300



tctccaccca gccaagacag tcacagcacc tgctcctcag gggacgactc agtctttgc  
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<210> 24  
<211> 802  
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<213> Xenopus laevis FGFR3-2

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35 40 45  
Glu Leu Ser Cys Ala Ala Glu Asp Ala Ser Thr Thr Lys Trp Cys  
50 55 60  
Lys Asp Gly Ile Gly Ile Val Pro Asn Asn Arg Thr Ser Thr Arg Gln  
65 70 75 80  
Gly Leu Leu Lys Ile Ile Asn Val Ser Ser Asp Asp Ser Gly Ile Tyr  
85 90 95  
Ser Cys Arg Leu Trp His Ser Thr Glu Ile Leu Arg Asn Phe Thr Ile  
100 105 110  
Arg Val Thr Asp Leu Pro Ser Ser Gly Asp Asp Glu Asp Asp Asp Asp  
115 120 125  
Asp Asp Asp Asp Glu Thr Glu Asp Arg Glu Pro Pro Arg Trp Thr Gln  
130 135 140  
Pro Glu Arg Met Glu Lys Lys Leu Ile Ala Val Pro Ala Ala Asn Thr  
145 150 155 160  
Ile Arg Phe Arg Cys Pro Ala Ala Gly Asn Pro Thr Pro Thr Ile His  
165 170 175  
Trp Leu Lys Asn Gly Lys Glu Phe Arg Gly Glu His Arg Ile Gly Gly  
180 185 190  
Ile Lys Leu Arg His Gln Gln Trp Ser Leu Val Met Glu Ser Val Val  
195 200 205  
Pro Ser Asp Lys Gly Asn Tyr Thr Cys Val Val Glu Asn Lys Tyr Gly  
210 215 220  
Ser Ile Arg Gln Thr Tyr Gln Leu Asp Val Leu Glu Arg Ser Ser His  
225 230 235 240  
Arg Pro Ile Leu Gln Ala Gly Leu Pro Gly Asn Gln Thr Val Val Leu  
245 250 255  
Gly Ser Asp Val Glu Phe His Cys Lys Val Tyr Ser Asp Ala Gln Pro  
260 265 270  
His Ile Gln Trp Leu Lys His Val Glu Val Asn Gly Ser Lys Tyr Gly  
275 280 285  
Pro Asp Gly Asp Pro Tyr Val Ser Val Leu Gln Ser Phe Ile Asn Gly  
290 295 300  
Thr Glu Val Asp Ser Thr Leu Ser Leu Lys Asn Val Thr Glu Thr Asn  
305 310 315 320  
Glu Gly Gln Tyr Val Cys Arg Ala Asn Asn Phe Ile Gly Val Ala Glu  
325 330 335  
Ala Ser Phe Trp Leu His Ile Tyr Lys Pro Ala Pro Ala Glu Pro Val

340	345	350
Glu Lys Ala Leu Thr Thr Ser Ser Ser Ser Ile Thr Val Leu Ile Val		
355	360	365
Val Thr Ser Thr Ile Val Phe Ile Leu Leu Val Ile Ile Val Ile Thr		
370	375	380
His Leu Met Lys Val Pro Ser Lys Lys Ser Met Thr Ala Pro Pro Val		
385	390	395
His Lys Val Ser Lys Phe Pro Leu Lys Arg Gln Gln Val Ser Leu Glu		400
405	410	415
Ser Asn Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile Thr His		
420	425	430
Leu Ser Ser Ser Asp Gly Thr Met Leu Ala Asn Val Ser Glu Leu Gly		
435	440	445
Leu Pro Leu Asp Pro Lys Trp Glu Leu Leu Arg Ser Arg Leu Thr Leu		
450	455	460
Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val Val Met Ala Glu		
465	470	475
Ala Ile Gly Ile Asp Lys Glu Arg Pro Asn Lys Pro Ala Thr Val Ala		480
485	490	495
Val Lys Met Leu Lys Asp Asp Ala Thr Asp Lys Asp Leu Ser Asp Leu		
500	505	510
Val Ser Glu Met Glu Met Met Lys Met Ile Gly Lys His Lys Asn Ile		
515	520	525
Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro Leu Tyr Val Leu		
530	535	540
Val Glu Tyr Ala Ser Lys Gly Ser Leu Arg Glu Tyr Leu Lys Ala Arg		
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Arg Pro Pro Gly Met Asp Tyr Ser Phe Asp Ala Cys Lys Ile Pro Ala		560
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Glu Gln Leu Thr Phe Lys Asp Leu Val Ser Cys Ala Tyr Gln Val Ala		
580	585	590
Arg Gly Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile His Arg Asp Leu		
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Ala Ala Arg Asn Val Leu Val Thr Asp Asp Asn Val Met Lys Ile Ala		
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Asp Phe Gly Leu Ala Arg Asp Ile His Asn Ile Asp Tyr Tyr Lys Lys		
625	630	635
Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala Leu		640
645	650	655
Phe Asp Arg Ile Tyr Thr His His Ser Asp Val Trp Ser Tyr Gly Val		
660	665	670
Leu Leu Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile		
675	680	685
Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu Gly His Arg Met Asp		
690	695	700
Lys Pro Ala Asn Cys Thr His Glu Leu Tyr Met Ile Met Arg Glu Cys		
705	710	715
Trp His Ala Val Pro Ser Gln Arg Pro Ala Phe Lys Gln Leu Val Glu		720
725	730	735
Asp Leu Asp Arg Val Leu Thr Val Thr Ser Thr Asn Glu Tyr Leu Asp		
740	745	750
Leu Ser Val Ala Phe Glu Gln Tyr Ser Pro Pro Ser Gln Asp Ser His		
755	760	765
Ser Thr Cys Ser Ser Gly Asp Asp Ser Val Phe Ala His Asp Ile Leu		
770	775	780
Pro Asp Glu Pro Cys Leu Pro Lys His Gln Gln His Asn Gly Ala Ile		

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Pro Thr

790

795

800

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<211> 2391  
<212> DNA  
<213> Pleurodeles waltlii FGFR3

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<210> 26

<211> 796

<212> PRT

<213> Pleurodeles waltlili FGFR3

<400> 26

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Val	Val	Trp	Phe	Lys	Asp	Gly	Ile	Ser	Val	Asp	Pro	Pro	Thr	Trp	Ser
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His	Thr	Gly	Gln	Lys	Lys	Leu	Leu	Lys	Ile	Asn	Val	Ser	Tyr	Asp	Asp
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Ser	Gly	Val	Tyr	Ser	Cys	Lys	Ala	Arg	Gln	Ser	Ser	Glu	Val	Leu	Arg
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Pro	Glu	Trp	Met	Glu	Lys	Lys	Leu	Leu	Ala	Val	Pro	Ala	Ala	Asn	Thr
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Val	Arg	Phe	Arg	Cys	Pro	Ala	Ala	Gly	Lys	Pro	Thr	Pro	Ser	Ile	Thr
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Trp	Leu	Lys	Asn	Gly	Lys	Glu	Phe	Lys	Gly	Glu	His	Ile	Gly	Gly	
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								195	200				205		
Pro	Ser	Asp	Arg	Gly	Asn	Tyr	Thr	Cys	Val	Val	Ala	Asn	Lys	Tyr	Gly
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His Ile Gln Trp Leu Lys His Val Glu Val Asn Gly Ser Lys Phe Gly	275	280	285
Pro Asp Gly Asn Pro Tyr Val Thr Val Leu Lys Thr Ala Gly Val Asn	290	295	300
Thr Ser Asp Lys Glu Leu Glu Ile Gln Phe Leu Arg Asn Val Thr Phe	305	310	315
Glu Asp Ala Gly Glu Tyr Thr Cys Leu Ala Gly Asn Ser Ile Gly Tyr	325	330	335
Ser His His Ser Ala Trp Leu Thr Val Leu Pro Pro Ala Glu Pro Val	340	345	350
Pro Asp Val Asp Thr Ser Val Ser Ile Leu Ala Ala Gly Cys Val	355	360	365
Ala Val Val Ile Leu Val Val Ile Ile Ile Phe Thr Tyr Lys Met Lys	370	375	380
Met Pro Ser Lys Lys Thr Met Asn Thr Ala Thr Val His Lys Val Ser	385	390	395
Lys Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ser Ser Met	405	410	415
Asn Ser Asn Thr Pro Leu Val Arg Ile Thr Arg Leu Ser Ser Ser Asp	420	425	430
Gly Pro Met Leu Ala Asn Val Ser Glu Leu Leu Pro Ala Asp Pro	435	440	445
Lys Trp Glu Leu Ser Arg Ser Arg Leu Thr Leu Gly Lys Pro Leu Gly	450	455	460
Glu Gly Cys Phe Gly Gln Val Val Met Ala Asp Ala Val Gly Ile Glu	465	470	475
Lys Asp Lys Pro Asn Lys Ala Thr Ser Val Ala Val Lys Met Leu Lys	485	490	495
Asp Asp Ala Thr Asp Lys Asp Leu Ser Asp Leu Val Ser Glu Met Glu	500	505	510
Met Met Lys Met Ile Gly Lys His Lys Asn Ile Ile Asn Leu Leu Gly	515	520	525
Ala Cys Thr Gln Asp Gly Pro Leu Tyr Val Leu Val Glu Tyr Ala Ser	530	535	540
Lys Gly Asn Leu Arg Glu Tyr Leu Arg Ala Arg Arg Pro Pro Gly Met	545	550	555
Asp Tyr Ser Phe Asp Thr Cys Lys Leu Pro Glu Glu Gln Leu Thr Phe	565	570	575
Lys Asp Leu Val Ser Cys Ala Tyr Gln Val Ala Arg Gly Met Glu Tyr	580	585	590
Leu Ala Ser Gln Lys Cys Ile His Arg Asp Leu Ala Ala Arg Asn Val	595	600	605
Leu Val Thr Asp Asp Asn Val Met Lys Ile Ala Asp Phe Gly Leu Ala	610	615	620
Arg Asp Val His Asn Ile Asp Tyr Tyr Lys Lys Thr Thr Asn Gly Arg	625	630	635
Leu Pro Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val Tyr	645	650	655
Thr His Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu Ile	660	665	670
Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Leu			

675	680	685
Phe Lys Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn Cys		
690	695	700
Thr His Glu Leu Tyr Met Ile Met Arg Glu Cys Trp His Ala Val Pro		
705	710	715
Ser Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg Val		
725	730	735
Leu Thr Val Thr Ser Thr Asp Glu Tyr Leu Asp Leu Ser Val Pro Phe		
740	745	750
Glu Gln Tyr Ser Pro Ala Cys Pro Asp Ser His Ser Ser Cys Ser Ser		
755	760	765
Gly Asp Asp Ser Val Phe Ala His Asp Leu Pro Glu Glu Pro Cys Leu		
770	775	780
Pro Lys His Gln Gln Tyr Asn Gly Val Ile Arg Thr		
785	790	795

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<212> PRT  
<213> Danio rerio FGFR3

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Ser Ser Glu Val Glu Val Phe Leu Glu Asp Tyr Val Ala Gly Val Gly  
35 40 45  
Asp Thr Val Val Leu Ser Cys Thr Pro Gln Asp Phe Leu Leu Pro Ile  
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Val Trp Gln Lys Asp Gly Asp Ala Val Ser Ser Asn Arg Thr Arg  
65 70 75 80  
Val Gly Gln Lys Ala Leu Arg Ile Ile Asn Val Ser Tyr Glu Asp Ser  
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Gly Val Tyr Ser Cys Arg His Ala His Lys Ser Met Leu Leu Ser Asn  
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Tyr Thr Val Lys Val Ile Asp Ser Leu Ser Ser Gly Asp Asp Glu Asp

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Tyr Trp Thr Arg Ser Asp Arg Met Glu Lys Lys Leu Leu Ala Val Pro		
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Ala Ala Asn Thr Val Lys Phe Arg Cys Pro Ala Ala Gly Asn Pro Thr		
165	170	175
Pro Ser Ile His Trp Leu Lys Asn Gly Lys Glu Phe Lys Gly Glu Gln		
180	185	190
Arg Met Gly Gly Ile Lys Leu Arg His Gln Gln Trp Ser Leu Val Met		
195	200	205
Glu Ser Ala Val Pro Ser Asp Arg Gly Asn Tyr Thr Cys Val Val Gln		
210	215	220
Asn Lys Tyr Gly Ser Ile Lys His Thr Tyr Gln Leu Asp Val Leu Glu		
225	230	235
Arg Ser Pro His Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn Gln		
245	250	255
Thr Val Val Val Gly Ser Asp Val Glu Phe His Cys Lys Val Tyr Ser		
260	265	270
Asp Ala Gln Pro His Ile Gln Trp Leu Lys His Ile Glu Val Asn Gly		
275	280	285
Ser Gln Tyr Gly Pro Asn Gly Ala Pro Tyr Val Asn Val Leu Lys Thr		
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Ala Gly Ile Asn Thr Thr Asp Lys Glu Leu Glu Ile Leu Tyr Leu Thr		
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Asn Val Ser Phe Glu Asp Ala Gly Gln Tyr Thr Cys Leu Ala Gly Asn		
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Ser Ile Gly Tyr Asn His His Ser Ala Trp Leu Thr Val Leu Pro Ala		
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Val Glu Met Glu Arg Glu Asp Asp Tyr Ala Asp Ile Leu Ile Tyr Val		
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Arg Met Trp Ile Asn Thr Gln Lys Thr Leu Pro Ala Pro Pro Val Gln		
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Lys Leu Ser Lys Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn		
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Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile Ala Arg Leu Ser		
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Ser Ser Asp Gly Pro Met Leu Pro Asn Val Ser Glu Leu Glu Leu Pro		
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Ser Asp Pro Lys Trp Glu Phe Thr Arg Thr Lys Leu Thr Leu Gly Lys		
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Pro Leu Gly Glu Gly Cys Phe Gly Gln Val Val Met Ala Glu Ala Ile		
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Met Leu Lys Asp Asp Gly Thr Asp Lys Asp Leu Ser Asp Leu Val Ser		
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Glu Met Glu Met Met Lys Met Ile Gly Lys His Lys Asn Ile Ile Asn		
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Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro Leu Tyr Val Leu Val Glu		
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Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr Leu Arg Ala Arg Arg Pro		
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Pro Gly Met Asp Tyr Ser Phe Asp Thr Cys Lys Ile Pro Asn Glu Thr		

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Met Glu Tyr Leu Ala Ser Lys Lys Cys Ile His Arg Asp Pro Ala Ala		
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Arg Asn Val Leu Val Thr Glu Asp Asn Val Met Lys Ile Ala Asp Phe		
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Gly Leu Ala Arg Asp Val His Asn Ile Asp Tyr Tyr Lys Lys Thr Thr		
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Asn Gly Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp		
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Arg Val Tyr Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Leu Leu		
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Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val		
675	680	685
Glu Glu Leu Phe Lys Leu Lys Glu Gly His Arg Met Asp Lys Pro		
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Ala Asn Cys Thr His Glu Leu Tyr Met Ile Met Arg Glu Cys Trp His		
705	710	715
Ala Val Pro Ser Gln Arg Pro Thr Phe Arg Gln Leu Val Glu Asp His		
725	730	735
Asp Arg Val Leu Ser Met Thr Ser Thr Asp Glu Tyr Leu Asp Leu Ser		
740	745	750
Val Pro Phe Glu Gln Tyr Ser Pro Thr Cys Pro Asp Ser Asn Ser Thr		
755	760	765
Cys Ser Ser Gly Asp Asp Ser Val Phe Ala His Asp Pro Leu Pro Glu		
770	775	780
Glu Pro Cys Leu Pro Lys His His Ser Asn Gly Val Ile Arg Thr		
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		800

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<210> 31  
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<213> Artificial Sequence

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<223> PCR Primer 3

<400> 31

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<210> 32

<211> 25

<212> DNA

<213> Artificial Sequence

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<223> PCR Primer 4

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